

Serial No.: 10/053,666
Atty. Docket No.: P67552US0

REMARKS

The Office Action mailed February 13, 2004, has been carefully reviewed and by this Amendment Applicants have amended claims 15, 27, 28 and 30, and canceled claims 29 and 31. Claims 15, 19-28 and 30 are pending in the application. Applicants have also submitted herewith the Declaration of Wolfgang Billinger to provide evidence of non-obviousness in accordance with 37 C.F.R. 1.132. In view of the above amendments, the declaration, and the following remarks, favorable reconsideration is respectfully requested.

The Examiner rejected claims 27, 29 and 31 under 35 U.S.C. 112, second paragraph, as being indefinite. By this Amendment, Applicants have corrected the informalities noted by the Examiner through the use of a proper Markush group (see MPEP 2173.05(h)).

The Examiner rejected claims 15, 19, 20, 24, 25, 27 and 30 under 35 U.S.C. 103(a) as being unpatentable over Applicants' prior art disclosure in view of U.S. Patent No. 4,966,802 to Hertzberg. The Examiner also rejected claims 21, 22 and 26 under 35 U.S.C. 103(a) as being unpatentable over Applicants' prior art disclosure in view of EP 0 532 016 A1 to Padden. It appears that the Examiner has rejected claim 23 based upon Applicants' prior

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art disclosure in view of Padden and further in view of Hertzberg, and that claims 28, 29 and 31 are generally rejected as containing limitations disclosed as prior art by the Applicants.

As set forth in amended claim 15, the present invention is directed to a connecting device used in an aircraft to connect a structural component of the aircraft with a movable part selected from the group consisting of a spoiler, a landing flap and a control surface, where extremely high loads act upon the connecting device. The connecting device includes at least one fitting that is made of a synthetic composite material according to a resin transfer molding method and includes a carbon fabric as a reinforcement element. The composite material is the same as a material from which the movable part is made, and the fitting is secured to the movable part by gluing. With this construction, the present invention reduces the demand on the connection between the fitting and the movable part in that both elements, being made of the same composite material, share a common thermal expansion coefficient.

As substantiated in the enclosed declaration, in this field of technology it is neither well known nor obvious to use a composite synthetic material for the fitting of a spoiler,

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landing flap or control surface, and to secure the fitting to the movable part by gluing. Applicants also request, on the basis of such declaration, reconsideration of the conclusion that gluing and bolting are equivalent in the high-load airplane application currently being claimed.

Claim 27 as amended is directed to a fitting for connecting a movable part of an aircraft with a structural component of said aircraft, in which the movable part is a spoiler, a landing gear or a control surface, the fitting being made of the same composite material as the movable part and being connected to the movable part *only* by gluing. Again, the use of composite materials to form the movable part and fitting, while relying only upon gluing therebetween is not reasonably suggested by the prior art and, as substantiated by the declaration, was not obvious to persons of ordinary skill in the art at the time the present invention was made. Reconsideration is therefore requested.

Reconsideration of claim 28 is also requested. While the prior art shows a fitting and a movable part, these components are not traditionally made of composite material, nor of the same material. Therefore, contrary to the Examiner's statement, because the fitting and movable parts are conventionally made of two different materials, it would not have

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been obvious according to prior art disclosures to form them integrally. According to the present invention, however, in which the fitting and movable part are made of the same composite material, the two components may be integrally formed, i.e., produced in one piece as a single unit in a manner not suggested by the prior art (see the specification at page 5, fourth full paragraph).

Amended claim 30 is directed to the combination of a fitting and a movable part of an aircraft in which the fitting and the movable part are made of the same composite material so as to have the same thermal expansion coefficient, with the fitting being glued between upper and lower covering layers of the movable part. The movable part, specifically identified as a spoiler, a landing flap or a control surface, represents a part that is subject to high loading such that the use of gluing therewith cannot be said to be obvious.

Hertzberg is directed to composites made of fiber reinforced resin elements, such as sheets or panels of material and their reinforcing members, which are joined by adhesive. These sheets or panels, when adhered together, are resistant to the delamination problems associated with prior resin composites and therefore represent an improvement over prior resin composites. However, Hertzberg does not contemplate the use of

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fiber reinforced resin elements in the formation of *fittings*. Rather, Hertzberg, in identifying the known problem of delamination associated with composites, teaches against the formation of a fitting according to a resin transfer molding method to secure movable and structural parts *under high-load conditions* as claimed by the present invention.

Padden describes a spoiler for an aircraft wing which is disclosed as being made of a composite material. However, there is nothing to suggest the use of a synthetic material *for the fitting* (which instead is made of aluminum), nor is there anything to suggest the formation of the fitting from the same composite material as the movable part so that both parts share a common thermal expansion coefficient.

For at least the foregoing reasons, reconsideration and allowance of claims 15, 27, 28 and 30 is requested. Claims 19-26 are also in condition for allowance as claims properly dependent on an allowable base claim. Favorable consideration is requested.

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Should the Examiner have any questions or comments, the Examiner is cordially invited to telephone the undersigned attorney so that the present application can receive an early Notice of Allowance.

Respectfully submitted,

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